



TECHNOLOGY TRANSFER ASSISTANCE PROGRAM

Missouri Transportation Bulletin

■ Research, Development & Technology Division
Missouri Department of Transportation
■ Federal Highway Administration
■ Local Technical Assistance Program

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Special Road District uses Recycled Asphalt Product (RAP)

Reclaim, Recycle and Relay

Local Technical Assistance Program (LTAP) would like to share the following success story from the Neosho Special Road District. Neosho is located in Newton County in southwest Missouri. This local project demonstrates a practical use of recycled material through a partnership commitment of the Newton County Commission and the Neosho Special Road District. The local transportation agency purchased excess pavement millings from an Oklahoma project.

Millings (asphalt) used in these projects consist of 3/8" pile run chat. These millings came off the Will Rogers Turnpike. These projects were done for two reasons: to convert a dirt road into



Roadway and ditches are reshaped, waste material is hauled off, roadbed is watered and compacted.

a blacktop hard surface, and to recycle material at a minimal cost.

The dirt road was prepared by mowing the right of way, cleaning ditches for proper drainage, cleaning or replacing drainage structures, shaping of roadbed, and hauling off excess waste material.

Millings were hauled to the job site by contract. Material was dumped and spread at approximately twenty tons per station. A motor grader was used to wind row material. Millings were used for surface and also for base. The weather at the time of the haul was dry, so the roadbed was watered to keep it moist and to help roll the material down into the roadbed. The wind row was moved from side to side. A small amount was left on the road and rolled to make the surface firm. Wind rows were spread out and a five ton drum roller was pulled over it to break up large pieces of material for a more uniform size and to even out the size of wind row for mixing with asphalt.

On road number 1, the air temperature was 80 degrees Fahrenheit, but the nights were cool. MC 250 asphalt was used at the rate of 3.5 gallons per ton. It worked fine, mixed well, spread fair, and rolled down good.

Approximately 1000 to 1200 gallons of tack oil per mile was used under the mix. What was a rough, rocky road is now a blacktop hard surface road that looks good, rides and drives well.



(continued on next page)

On road number 2 the temperature was around 70 degrees with cool nights and heavy dews (almost too cool). With cooler temperatures, the MC 250 cut back activated the old AC oil enough that viscosity went from MC 250 to approximately MC 800. This didn't mix well and started to ball up (temperature was 70 degrees with a strong wind). Four to five days later the temperature came up, when it reached 85 degrees we finished laying the RAP.

On road number 3, MC 70 with asphalt of 55% and cut back at 45% was utilized. This worked really well. The cut back activated the old AC oil and the MC 70 set it together. At the rate of 4 gallons per ton, it mixed well, worked well, and rolled down tight and looked good. Because of the cool temperatures MC 70 was used on the remaining projects.

Approximately 1000 to 1200 gallons of tack oil per mile was used under the

mix. What was a rough, rocky road is now a blacktop hard surface road that looks good, rides and drives well.

After completion of a new road surface, most pot-holes start on the edge of a road. Knowing this, approximately 3-4 weeks after completion the edge of the road was fly coated with MC 800 at the rate of .2 gallons per square yard 2 foot wide to strengthen the edge and prevent water from entering through the edge and under the road.

The Special Road District overlaid 4.8 miles of road with 5,398 tons of millings. The cost of hauling was \$19,836.85. We purchased 30,820 gallons of asphalt for mixing and tack. The total cost was \$39,695.29 for all material, which divides to \$7.35 per ton. If purchased from the plant this material costs \$23.50 - \$25.00 per ton, which would have cost us \$134,950 for the same 4.8 miles, and that does not

include the price to haul. If we mix this ourselves on our mix board the cost is \$17.34 per ton, which would amount to \$93,601.32 with no hauling and no tack oil. Clearly, this is a bargain and a great way to convert dirt roads to hard surface.

The Neosho Special Road District, thanks the County Commission for the materials used in these projects. We appreciate the help and harmony of cooperation between the two commissions. Again Thanks.

Ed Russell
Superintendent
Neosho Special Road District

Newton County Commission
Newton County Court House
P.O. Box 488, Neosho, MO 64850
417-451-8221



RAP millings are dumped, material is graded into wind rows for uniform thickness.



Tack is applied to the roadway. Oil is then added to the millings, mixed, placed and rolled.

LTAP-Adding value to the nation's highway system

At a time when resources are shrinking, responsibilities facing many transportation agencies are increasing. One way many local agencies are keeping pace is through their state's LTAP (Local Technical Assistance Program) sponsored by the Federal Highway Administration (FHWA).

LTAP centers are always looking for better ways of maintaining the nation's highway system and transferring that information to those involved with keeping the nation's highways and byways up to par. A phone call is often all it takes for an agency to find the solution to a problem, or to find out about the latest methods and tools for doing their jobs better and more efficiently.

A network of 57 LTAP centers provides technology transfer services, technical assistance, training, products, advice, and education resources to meet the varied needs of 38,000 rural and local agencies and tribal governments nationwide. Missouri's LTAP center is located in Research, Development and Technology, Missouri Department of Transportation. A list of all the LTAP Centers is located on the Internet at <http://www.ltapt2.org/list.htm>. For more information about the LTAP program, go to the Internet site <http://www.ltap.org/LtapOrg/>

Listed below are some of the benefits provided by the Missouri LTAP:

- Held 54 training programs, training 1,094 state and local government personnel in 1999, providing 455 hours of instruction.
- Offer training in a number of formats, including workshops, field

demonstrations, teleconferences and conferences (exhibit booths).

- In 1999, the LTAP center provided 5252 technical materials, reports and other materials; and 54 videos, to local government transportation agencies.
- Provided field assistance to 51 local transportation officials in 1999.

LTAP works! Make it a part of your transportation team! In Missouri, call the Missouri Department of Transportation at 1-888-ASK-MODT or locally, 573-751-0852. (1-888-275-6638)

Historic Bridges

Sharps Station Bridge Platte County, Missouri

Sharps Station Bridge spanning the Platte River is available for adaptive use. National Register eligible. Erected in 1920 by the Kansas City, Clay County and St. Joseph Railroad. This bridge is an example of two-160' long rigid-connected Pratt through trusses with a 15' roadway. It can be dismantled and match marked for further handling by the party accepting ownership. **Contact by April 30, 2000:** Michael J. Turner, Harrington & Cortelyou, Inc., 127 W. 10th St., Kansas City, MO 64105 at (816) 421-8386 or fax (816) 471-6109.

Washington County, Missouri

WASHINGTON COUNTY, MO Bridge No. 08600401 over Cedar Creek will be available for adaptive reuse. NRHP eligible. Built in 1918 by R.L. Miller & Co. of St. Louis. This 202-ft. bridge is a Twin Pratt Truss with a 13.5-ft. roadway. It can be match-marked, dismantled, and stored for further handling of party accepting ownership. Contact Brad Dunagan, P.E. at Bryan & Associates, Inc., 2717 Industrial Drive, Jefferson City, MO 65109 by March 20, 2000.

Bridge Engineering Assistance Program

Many local agencies and their political subdivisions have neither the funds nor the engineering expertise necessary to conduct effective bridge evaluations or determine bridge maintenance and repair priorities.

As a result, the Missouri Highway and Transportation Commission has developed the BRIDGE ENGINEERING ASSISTANCE PROGRAM to provide Missouri local public agencies with the assistance necessary to study bridge engineering problems.

The services of this program are to be used for bridges which are located on public roads under the jurisdiction of local public agencies which are located off of the State System. These services are intended to be available to attack definite operational or structural problems presently being experienced on an existing bridge, and are not intended to be used for the development of detailed plans for new bridges. BEAP services are not intended to duplicate services already available to local agencies either through the MoDOT district or General Headquarters. The consultant services provided under this program are intended to maximize the availability of professional advice or services to local public agencies with technician and drafting time minimized. BEAP DOES NOT PROVIDE FUNDING FOR CONSTRUCTION OR CONSTRUCTION ENGINEERING SERVICES.

If you would like more information on this program, please see "free publications" section in this newsletter.

LTAP Emphasis on BEAP

Calendar year 1999 Bridge Assistance was enhanced to include 36 projects in 26 counties throughout Missouri with LTAP providing critical funding for local jurisdiction emphasis.

The Consultants

MoDOT has contracted with eight consultant firms that have various offices that may be utilized across the state. The BEAP consultants' names and addresses are as follows:

8 Consultants will be utilized.

Bucher, Willis & Ratliff
7920 Ward Parkway, Suite 100
Kansas City, MO 64114-2021
Phone 816/363-2696
FAX 816/363-0027

Great River Engineering, Inc
PO Box 1258
Hannibal, MO 63401
Phone 573/248-0800
FAX 573/248-1777

Great River Engineering, Inc
3115 S Pickwick Place
Springfield MO 65804
Phone 417/886-7171
FAX 417/886-7591

Harrington & Cortelyou, Inc.
127 West 10th Street
Kansas City, MO 64105
Phone 816/421-8386
FAX 816/471-6109

Harrington & Cortelyou, Inc.
300 South Jefferson
Springfield, MO 65806
Phone 417/863-9989
Fax 417/862-6390

Stimac-Eslinger Structural Engineer-
ing, Inc.
1242 Ticonderoga Drive
Chesterfield, MO 63017-2436
Phone 636/537-5221
FAX 636/537-5221

McDonald & Warger
PO Box 236
Liberty, MO 64069
Phone 816/781-6182
FAX 816/781/5781

Modjeski & Masters
710 North 2nd Street, Suite 200
North
St. Louis, MO 63102
Phone 314/588-8115
FAX 314/588-8117

Shafer, Kline & Warren, P.A.
3150 Mercer, Suite 672
Kansas City, MO 64111
Phone 816/751-6400
FAX 816/525-6401

Shafer, Kline & Warren, P.A.
215 North Rollins
P.O. Box 366
Macon, MO 63552
Phone 660/385-6441
FAX 660/385-6614

HNTB Corporation
1201 Walnut, Suite 700
Kansas City, MO 64106
Phone 816/472-1201
FAX 816/472-4060

HNTB Corporation
10 South Broadway Suite 400
St. Louis MO 63102
Phone 314/241-2808
FAX 314/241-1941

If you would like more information on this program, please see "free publications" section in this newsletter.

Cooperative buying plan saves money for cities and counties

MoDOT's Cooperative Procurement Program

City and county (political subdivisions) can stretch their road and bridge dollars through the Cooperative Purchase Plan offered through the Local Technical Assistance Program.

The program allows political subdivisions, like cities and counties, the opportunity to purchase equipment (such as trucks) at bid prices the Missouri Department of Transportation (MoDOT) is quoted. In many cases, cities and counties can save money because prices quoted the department are often lower due to the quantity of items purchased.

To be included, an organization needs to submit a RESOLUTION to the department showing interest in the program. Preprinted resolutions are available upon request. When an organization has executed the resolution and has submitted it to MoDOT, they will be included on the mailing list. Participants will be notified with special mailings throughout the year as bids are received. Cities and counties work with individual vendors for purchasing and delivery arrangements.

What Can I Save?

Savings reported through cooperative purchasing include:

- Time and effort necessary to advertise, analyze and award bids by the local governments.
- Volume purchases.

Cooperative Purchasing Program

MoDOT has established tentative bid dates for 2000.

A list of items that are anticipated to be available under the Cooperative Purchasing Program through General Services, (MoDOT) for the 2000 calendar year has been compiled.

We offer this information as assistance to cities and counties while developing their plan for future budget expenditures.

New Equipment Bid at MoDOT

- **Air Compressor**
 - Air Compressor - Trailer Mounted - 185 C.F. ***
- **Automobiles**
 - Alternative Fuel Cars and Pickups
 - Automobiles
 - Stationwagons
 - Vans
 - Cargo
 - Passenger
 - Extended Mini
- **Boom Crane**
 - Hydraulic Truck Mounted Folding Boom Crane Unit ***
- **Concrete Mixer**
 - Skid Mounted Mobil ***
- **Crack Filler**
 - Supershot - 125 DC w/Autoloader
- **Dump Bodies**
 - Dump Body, 10 ft. (5.4 cu.yd. minimum)
- **Loader**
 - Heavy Duty 4 Wheel Drive Articulating Loader w/Quick Coupler Forklift Attachment
 - Extra Heavy Duty Backhoe Loader w/Extendable Dippersticks
- **Materials**
 - Bagged Calcium Chloride
 - Sodium Chloride (Rock Salt)
- **Materials Spreaders**
 - Replaceable Tailgate Materials Spreader
 - Hydraulically Driven Material Spreader Bodies Pickup Body Mounted
 - Pickup
 - V-Hopper 9 ft, 10 ft., 11 ft., 13 ft., 16 ft.
- **Melter Applicator**
 - Trailer Mounted Diesel Engine Driven Melter Applicators ***
- **Mowers**
 - Rotary Mowers - 8 ft.
 - Bat Wing - 15 ft.
 - Flail Mowers
 - Heavy Duty Ind. Slope Mower
 - Side Mount Cutter Bar Mower - 6 ft. and 7 ft.
- **Paver**
 - Pull Type Paver
- **Snow Plows**
 - 8 ft. Junior Mid-Mount Wing Plow
 - Underbody Snow Plow
- **Pothole Patcher**
 - Thermo-Patch Pothole Patcher ***
- **Rollers**
 - 7-8 ton Vibratory Smooth Tandem Roller ***
- **Sport Utility Vehicle**
 - 4 x 4 Option
 - 2 & 4 Door
- **Street Sweepers**
 - Street Sweeper - Geo Vac
- **Tractors**
 - 85 HP F.W.D.- Tractor
 - Diesel Tractor w/Alamo Mower
- **Trailers**
 - Equipment Trailer (wide bed) 10 ton - Beaver Tail
 - Tag Type, Tilt, Low Bed, 15 ton Capacity Equipment Trailer
 - Tag Type, Sliding Axle, Low Bed, 20 Ton Capacity Equipment Trailer
- **Tires and Tubes**
 - Cars and Trucks
- **Trucks**
 - ¼, ½, ¾. 1 Ton Trucks, 4 x 4, Club Cab, Light Duty
 - Pickup,
 - Crew Cab Pickup
 - Chassis-Cab with 8 ft. & 10 ft. Platform
 - Cab-Over Truck with a 10 ft. Steel Platform Bed w/109 in. Wheelbase
 - Dump Body - 12 cubic yard w/ Double Acting Telescope Hoist
 - Extended Cab & Chassis
 - Medium Duty Single Axle Chassis Cab
 - Medium Duty Tandem Axle Chassis Cab
 - Utility Bodies, Various Wheelbases

*** Not Annual Bids

Office of Administration (OA) Cooperative Procurement Program

The State of Missouri (OA) has a similar program entitled "Local Government Cooperative Procurement Program" (573) 751-4169. This program offers cooperative purchase bids on office oriented equipment (example: - personal computers) utilized in state government.

OA Internet

The state of Missouri, Division of Purchasing and Materials Management's website address is: <http://www.oa.state.mo.us/purch/purch.htm>.

The following information can be accessed on the Internet at the Cooperative Procurement Member Site address: <http://www.oa.state.mo.us/purch/coop.html>.

- Cooperative Procurement Program Fiscal Year 99 Summary
- Cooperative Procurement Manual
- Statewide Contract Listing
- Cooperative Procurement Newsletter
- Cooperative Procurement Membership Listing
- Cooperative Procurement Membership Form
- Cooperative Procurement Quarterly Contract Usage Log

If you have access to the Internet, please download a copy of the Quarterly Contract Usage Log, third quarter, and record all purchases made utilizing statewide contracts during the period January 1, 2000 through March 31, 2000. If you have any questions, please do not hesitate to contact Karen Herman, Cooperative Procurement Officer at (573)751-4169 or email:

hermak@mail.oa.state.mo.us

(See Free Pubs for Complete Listing of OA Bids)

NACE 2000 Annual Conference

Each spring over 350 NACE members and other attendees gather for the NACE annual conference. The NACE 2000 Annual Meeting and Management & Technical Conference will be hosted by the Kansas County Highway Association in Overland Park, Kansas from April 16-20, 2000.

General Session & Technical Sessions

By attending timely and informative sessions and workshops delegates find ideas that help them get the most benefit out of scarce local government resources. Also you will gain a better understanding of the latest transportation legislation and regulations. An additional educational value is that you can earn professional development units for attending the NACE conference.

Committee Meetings

Share your knowledge and insights on issues of interest to you. All members are encouraged to participate in the committees that cover a wide range of issues including traffic, construction and maintenance, computers, surveying, highway and bridge design, stormwater and drainage, or administration and finance (see committee listings in the Annual Membership Directory or on the website).

Exhibit Show

During the first two days of the conference, the exhibit show allows delegates to learn about the latest products and services in a friendly atmosphere.

Networking

Throughout the conference attendees will have opportunities to meet public works leaders and their counterparts from other counties around the country, to exchange ideas, and have some fun. You can build professional contacts while meeting friends, old and new.

Annual Banquet

The grand finale of the conference is the President's Reception and Annual Banquet dinner, which includes the presentation of Engineer of the Year awards and the induction of the new NACE officers.

Finally, the local hospitality and tours top off your reasons to attend. The NACE Conference is the only conference designed just for you because it's planned and hosted by your peers, NACE member volunteers.

Why Attend NACE 2000?

- Learn new ideas for better use of county resources
- Keep current and understand new legislation
- Meet with vendor contacts and get new information
- Network with 350+ fellow professionals
- Have fun and see the sights of Overland Park, KS
- Planned & hosted by your peers, NACE member volunteers of the Kansas County Highway Association.

General Session:

Technology Deployment in TEA-21
TEA-21, At the Half Way Point

Technical Session Topics:

Integrating Management Systems.
Establishing and Using Your Public Works Website.
Utility Cuts/Road Patching: the Real Costs.
Ethics for the New Millennium.
The Importance of Pavement Maintenance.
Lease Purchase Financing.
Gut-Level Flagging.
Management Improvements.
Virtual Accident Reconstruction.
Mock Trial on Tort Liability.
Latest in the MUTCD.
Geometric Design Guidelines Low Volume Roads.

Stress Management- Working with Difficult People.

Bridge Scour.

Plastic Bridge Design and Construction.

Humor in the Workplace.

GIS Applications in Safety.

Equipment Rodeos-A Great Way to Instill Pride.

Innovative Contracting Methods.

QC/QA of Concrete.

GIS Local Applications: Geo-Engineering.

Short Courses

AISI Short Span Steel Bridge Workshop.
Innovations & Structure Rehab/ Relining with Corrugated Products.
Stormwater Management Phase II Implementation.

Exhibit Show

The exhibit show during NACE 2000 will offer a friendly environment to visit vendors at almost 60 indoor booths and over 30 outdoor spaces. The exhibitor map will be updated on the NACE website so that you can plan out ahead of time your must see vendor booths. In addition make sure you take advantage of strolling around the exhibit show to see what's new.

Get out there and kick the tires. Just outside the ballroom doors in the parking lot, you can visit outdoor exhibit spaces with equipment vendors showing their stuff.

For more information see website at www.naco.org/affils/nace.

Free Publications

The publications listed are available free from Tech Tran. Place a checkmark by the titles you wish to receive, print your name, agency and address where indicated and mail to Tech Tran.

____ "Drainable Pavement Systems (Participant Notebook)". The purpose of this demonstration project is to provide State highway engineers with current state-of-the-art drainage guidance on the design and construction of permeable bases and edgedrains for Portland cement concrete pavements. (*Federal Highway Administration – FHWA-SA-92-008*).

____ "Correct Sign Installation Increases Motorist Safety". Road signs should not become a bigger hazard than the situation they are meant to improve. Covers placement, height and lateral location of signs, sign supports, U channel steel post, steel

pipe post and square steel tube (perforated). (*University of Nevada, Highway Man, Fall, 1999*).

____ "Could Your Passive Grade Crossing be Safer?" Kansas research shows problems associated with passive grade crossings on low volume roads-and what can be done to improve safety. (*KUTC Newsletter, Summer 1999*).

____ "Dealing with Dangerous Mailboxes". How to design the ideal mailbox, risks of grouped or multiple mailboxes, proper placement and location of mailboxes. Discusses what Wyoming and Wisconsin are doing to reduce the amount of damage caused by improper installation of mailboxes in their states. (*Baystate Roads Program – Tech Note #20*).

____ "Bridge Engineering Assistance Program". This program is in place whereby local public agencies can receive engineering assistance. The scope of services covered in this report are: purpose, personnel, administration, funding, responsibilities of: local agencies, consultant, district and bridge division. (*Missouri Department of Transportation, Bridge Division*).

____ "Cooperative Purchase Program". Complete listing of Office of Administration equipment bids.

____ "General Pedestrian and Bicycle Guide". The purpose of this document is to provide Missouri Department of Transportation's policy on accommodations for pedestrians and bicyclists.

Please print your name and address below, then detach and mail to:
Missouri Department of Transportation,
Technology Transfer Assistance Program,
P.O. Box 270, Jefferson City, MO 65102

Name

Agency

Address

City

State

Zip

Phone

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Detach and mail

Videos available for two week loan

____ 0429 (1-3) "Commercial Driver Licensing Videos". A training aid for drivers attempting to obtain their commercial license. Covers: overview, vehicle inspection, operating techniques, vehicle safety, transporting cargo, transporting passengers, air brakes, combination vehicles and hazardous materials. References CDL manual and sample test questions displayed on screen.

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Technology Transfer Assistance Program
Local Technical Assistance Program
P.O. Box 270
Jefferson City, MO 65102

Telephone
573-751-0852

Address Correction Requested

Future Events

March 7-9, 2000
**20th Annual P.C. Concrete Paving
Conference and Back to the Basics
Seminar**

Downtown Marriott Hotel
Kansas City, Missouri
Phone: (816) 421-6800

March 29-30, 2000
Highway Engineers' Conference

Tan-Tar-A Resort
Lake of the Ozarks, Missouri
Contact: Kim Temmen
Phone: (573) 751-1132

April 16-20, 2000
**National Association of County
Engineers Annual Meeting and
Management & Technical Conference**

Overland Park Marriott
Overland Park, Kansas
Phone: 202-393-5041

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